



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue
Seattle, WA 98101

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MEMORANDUM

SUBJECT: Guidance on Water Quality Based Effluent Limits Set Below Analytical Detection/Quantitation Limits

FROM: Cindi Godsey, NPDES Permits Unit
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TO: NPDES Permits Unit Consistency Book

The purpose of this memorandum is to provide guidance to EPA Region 10 permit writers and compliance staff, for permitting, monitoring, and enforcement of water quality-based effluent limits set below the analytical detection/quantitation limit. This guidance is for effluent limits that are greater than zero but less than the minimum level (ML).

NPDES permits must include the water quality based effluent limit regardless of the proximity of the limit to the analytical detection level. Where the effluent limit concentration is below the analytical detection level for the pollutant of concern the following is recommended:

- The NPDES permit should include the most sensitive Method Detection Level (MDL) from an EPA approved analytical test method necessary for compliance monitoring. The analytical test method should be approved under 40 CFR 136, or other appropriate method if one is not available under 40 CFR 136. The permit should also identify the ML as the compliance level.
- The NPDES permit should state that any sample analyzed in accordance with a method having the appropriate MDL and ML and found to be below the ML will be considered in compliance with the permit limits unless other monitoring information indicates a violation.
- The permit should specify how samples should be reported. Suggested language: For purposes of reporting on the DMR for a single sample, if a value is less than the MDL, the permittee must report "less than {numeric value of the MDL}" and if a value is less than the ML, the permittee must report "less than {numeric value of the ML}."

Where more than one sample is being considered, the permit should specify how effluent samples below the ML should be utilized for purposes of averaging.

Suggested language: For purposes of calculating monthly averages, zero may be assigned for values less than the MDL, the {numeric value of the MDL} may be assigned for values between the MDL and the ML. If the average value is less than the MDL, the permittee must report "less than {numeric value of the MDL}" and if the average value is less than the ML, the permittee must report "less than {numeric value of the ML}." If a value is equal to or greater than the ML, the permittee must report and use the actual value. The resulting average value must be compared to the compliance level, the ML, in assessing compliance.

- Special conditions should be included in the permit which help ensure that the limits are being met and that excursions above water quality standards are not occurring. Special conditions could include: fish tissue sampling, sediment monitoring, limits/monitoring on internal wastestreams, or limits/monitoring for surrogate parameters.

RATIONALE

EPA's recommended approach in the *Technical Support Document for Water Quality-based Toxics Control*, EPA, March 1991 (TSD, chapter 5, section 5.7.3), includes:

- The NPDES permit should include the most sensitive analytical test method that should be used for compliance monitoring. The analytical test method should be approved under 40 CFR 136, or other appropriate method if one is not available under 40 CFR 136.
- The NPDES permit should state that any sample analyzed in accordance with the specified method and found to be below the compliance level will be considered in compliance with the permit limit unless other monitoring information indicates a violation.
- Sample results at or above the ML should be reported as the observed concentrations whereas sample results below the compliance level should be reported as less than this level.
- The compliance level cited in the permit must be clearly defined and quantified. For most NPDES permitting situations, EPA recommends that the compliance level be defined in the permit as the ML. The ML is the level at which the entire analytical system gives recognizable mass spectra and acceptable calibration points.
- Special conditions should be included in the permit which help ensure that the limits are being met and that excursions above water quality standards are not occurring. Special conditions could include: fish tissue sampling, limits/monitoring on internal wastestreams, or limits/monitoring for surrogate parameters.

The TSD does not recommend an approach for averaging multiple sample results below

the ML. However, a memorandum entitled *Questions and Answers on the Great Lakes Water Quality Guidance, Set 2* (March 20, 1996; James Hanlon, Deputy Director of the Office of Science and Technology), states:

In the case of determining compliance with average limitations, permitting authorities shall use applicable State and Tribal procedures to average and account for monitoring data (see Procedure 8, Section A.4) and, Permitting authority may have various approaches for specifying how effluent samples below the LOQ should be regarded for purposes of averaging (e.g., equal to zero, equal to one-half the LOQ, etc.).

DEFINITIONS

Limit of quantization means the smallest amount of chemical that can be reliably quantitated.

Method Detection Limit means the minimum concentration of a substance (analyte) that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix containing the analyte (see 40 CFR 136 Appendix B).

Minimum Level means the concentration at which the entire analytical system must give a recognizable signal and an acceptable calibration point. The ML is the concentration in a sample that is equivalent to the concentration of the lowest calibration standard analyzed by a specific analytical procedure, assuming that all the method-specified sample weights, volumes and processing steps have been followed (*Technical Support Document for Water Quality-based Toxics Control*, EPA, March 1991).